

REMARKS

The above amendment is believed to place the claims in proper condition for examination.

Early and favorable action is awaited.

Claims 3-5, 9 and 13-17 have been amended.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event there are any additional fees required, please charge our Deposit Account No. 01-2340.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES NAME

Claims 3-5; 9 and 13 to 17 have been amended as follows:

3. (Amended) A nematic liquid crystal composition according to claim 1 [or 2], wherein said liquid crystal component A contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (1-ai) to (1- avii), the content of said compounds being within a range from 10 to 100% by weight:

(I-ai) compound in which R<sup>1</sup> is an alkyl or alkenyl group having 2 to 7 carbon atoms,

(I-aii) compound in which Q<sup>1</sup> is F, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, OCF<sub>2</sub>, or CN,

(I-aiii) compound in which K<sup>1</sup> to K<sup>5</sup> represent -(CH<sub>2</sub>)<sub>2</sub>-, -COO-, or -C≡C-,

(I-av) compound in which rings A<sup>1</sup> to A<sup>4</sup> represent trans-1,4- cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5- difluoro-1,4-phenylene, and

(I-av) compound in which one, or two or more hydrogen atoms, which are present in naphthalene-2,6-diyl ring, a 1,2,3,4- tetrahydronaphthalene-2,6-diyl ring, a decahydronaphthalene- 2,6-diyl ring, a side chain group R<sup>1</sup>, a polar group Q<sup>1</sup>, linking groups K<sup>1</sup> to K<sup>5</sup> and rings A<sup>1</sup> to A<sup>4</sup>, are substituted with deuterium atoms, in the general formulas (I-1) to (I-5);

(I-avi) compound in which W<sup>1</sup> to W<sup>3</sup> represent H, F, Cl, CF<sub>3</sub>, or OCF<sub>3</sub> in the general formulas (I-1) to (I-3) and (I-5); and

(I-avii) compound in which X<sup>1</sup> and X<sup>2</sup> represent H, F, Cl, CF<sub>3</sub>, or OCF<sub>3</sub> in the general formulas (I-2) to (I-4) .

4. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 3] claim 1, wherein said liquid crystal component A contains one to twenty kinds of compounds selected from one, two, or three or more sub-groups among the following sub-groups (I-bi) to (I-bvii), the content of said compounds being within a range from 5 to 100% by weight:

(I-bi) compound in which  $k^1=k^2=0$ , the ring  $A^1$  is trans-1,4- cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5- difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4- tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6- diyl,  $K^1$  is a single bond,  $-(CH_2)_2-$ ,  $-COO-$ , or  $-C\equiv C-$ , and

(I-bii) compound in which  $k^1=1$ ,  $k^2=0$ , rings  $A^1$  and  $A^2$  represent trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3, 5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4- tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl,  $K^1$  is a single bond,  $-(CH_2)_2-$ ,  $-COO-$ , or  $-C\equiv C-$ ,  $K^1$  and  $K^2$  represent a single bond,  $-(CH_2)_2-$ ,  $-COO-$ , or  $-C\equiv C-$ , in the general formula (I-1) in which  $R^1$  is an alkyl or alkenyl group having 2 to 7 carbon atoms,  $Q^1$  is F, Cl,  $CF_3$ ,  $OCF_3$ , or CN, and  $W^1$  to  $W^3$  each represents H, F, Cl,  $CF_3$ , or  $OCF_3$ ;

(I-biii) compound in which  $k^3=k^4=0$ , the ring  $A^1$  is trans-1,4- cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5- difluoro-1,4-phenylene, and  $K^1$  and  $K^4$  represent a single bond,

(I-biv) compound in which  $k^1=k^2=0$ ,  $K^3$  is a single bond,  $-COO-$ , or  $-C\equiv C-$ , and

(I-bv) compound in which  $k^1=1$ ,  $k^2=0$ , the ring  $A^1$  is 1,4-phenylene, 3-fluoro-1,4-phenylene, or a 3,5- difluoro-1,4- phenylene,  $K^1$  and  $K^3$  represent  $-COO-$  or  $-C\equiv C-$ , in the general formula (I-3) in which  $R^1$  is an alkyl or alkenyl group having 2 to 7 carbon atoms,  $Q^1$  is F, Cl,  $CF_3$ ,  $OCF_3$ , or C,  $X^1$  and  $X^2$  represent H, F, Cl,  $CF_3$ , or  $OCF_3$ , and  $W^1$  to  $W^3$  represent H, F, Cl,  $CF_3$ , or  $OCF_3$ ;

(I-bvi) compound in which  $k^5=k^6=k^7=k^8=0$ ,  $K^5$  is a single bond,  $-(CH_2)_2-$ ,  $-(CH_2)_4-$ ,  $-COO-$ , or  $-C\equiv C-$ ,

(I-bvii) compound in which  $k^5=1$ ,  $k^6=k^7=k^8=0$ , the ring  $A^1$  is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene,  $K^1$  and  $K^5$  represent a single bond,  $-(CH_2)_2-$ ,  $-COO-$ , or  $-C\equiv C-$ ,

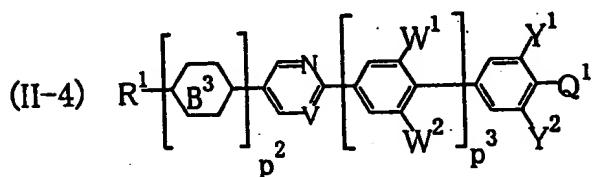
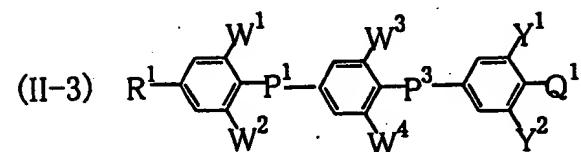
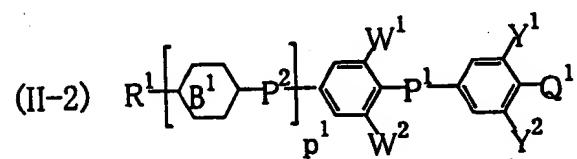
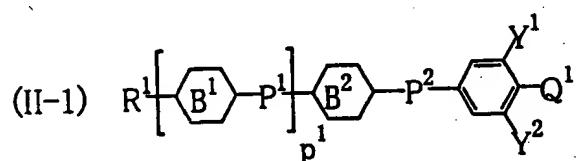
(I-bviii) compound in which  $k^7=1$ ,  $k^5=k^6=k^8=0$ , the ring  $A^3$  is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, or 3,5-difluoro-1,4-phenylene,  $K^3$  and  $K^5$  represent a single bond,  $-(CH_2)_2-$ ,  $-COO-$ , or  $-C\equiv C-$ , and

(I-bix) compound in which the decahydronaphthalene-2,6-diyl ring has at least one substituent among substituents  $-CF_2-$ ,  $-CH_2-O-$ ,  $-CH=CH-$ ,  $-CH=CF-$ ,  $-CF=CF-$ ,  $-CH=N-$ ,  $-CF=N-$ ,  $>CH-O-$ ,  $>C=CH-$ ,  $>C=CF-$ ,  $>C=N-$ ,  $>N-CH_2-$ ,  $>CH-CF<$ ,  $>CF-CF<$ ,  $>C=C<$ , and Si, in the general formula (I-4) in which  $R^1$  is an alkyl or alkenyl group having 2 to 7 carbon atoms,  $Q^1$  is F, Cl,  $CF_3$ ,  $OCF_3$ , or CN, and  $X^1$  and  $X^2$  represent H, F, Cl,  $CF_3$ ,  $OCF_3$ ; and

(I-bx) compound in which  $k^1=k^2=0$ , the ring  $A^1$  is trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl,  $K^1$  is a single bond,  $-(CH_2)_2-$ ,  $-(CH_2)_4-$ , or  $-COO-$ , and

(I-bxi) compound in which  $k^1=1$ ,  $k^2=0$ , rings  $A^1$  and  $A^2$  represent trans-1,4-cyclohexylene, 1,4-phenylene, 3-fluoro-1,4-phenylene, 3,5-difluoro-1,4-phenylene, naphthalene-2,6-diyl, 1,2,3,4-tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, and  $K^1$  and  $K^2$  [eac]each represents a single bond,  $-(CH_2)_2-$ ,  $-(CH_2)_4-$ , or  $-COO-$ , in the general formula (I-5) in which  $R^1$  is an alkyl or alkenyl group having 2 to 7 carbon atoms,  $Q^1$  is F, Cl,  $CF_3$ ,  $OCF_3$ , or CN, and  $W^1$  and  $W^2$  represent H, F, Cl,  $CF_3$ , or  $OCF_3$ .

5. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 4] claim 1, wherein said liquid crystal component B contains one, or two or more kinds of compounds selected from the group of compounds represented by the general formulas (II-1) to [(I-4)] (II-4) :



(wherein  $R^1$  each independently represents an alkyl group having 1 to 10 carbon atoms or an alkenyl group having 2 to 10 carbon atoms, said alkyl or alkenyl group can have one, or two or more F, Cl, CN,  $\text{CH}_3$  or  $\text{CF}_3$  as a non-substituent or substituent group, and one, or two or more  $\text{CH}_2$  group, which

are present in said alkyl or alkenyl group, may be substituted with O, CO or COO, while O atoms do not bond with each other directly;

Q<sup>1</sup> each independently represents F, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, OCF<sub>2</sub>H, OCFH<sub>2</sub>, NCS, or CN;

W<sup>1</sup> to W<sup>4</sup> each independently represents H, F, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, or CN, and also W<sup>4</sup> each independently represents CH<sub>3</sub>;

Y<sup>1</sup> and Y<sup>2</sup> each independently represents H, F, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, or CN;

V represents CH or N;

p<sup>1</sup> to p<sup>3</sup> each independently represents, a single bond, -COO-, -OCO-, -CH<sub>2</sub>O-, -OCH<sub>2</sub>-, -(CH<sub>2</sub>)<sub>2</sub>-, -(CH<sub>2</sub>)<sub>4</sub>-, -CH=CH- (CH<sub>2</sub>)<sub>2</sub>-, -(CH<sub>2</sub>)<sub>2</sub>-CH=CH-, -CH=N-, =CH=N-N=CH-, or -N(O)=N-, and  
p<sup>1</sup> and p<sup>3</sup> each independently represents -CH=CH-, -CF=CF-, or C ≡C-;

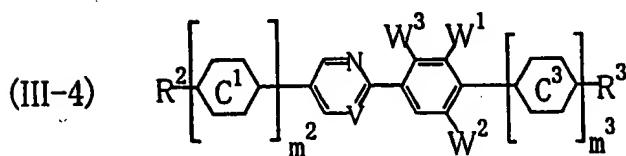
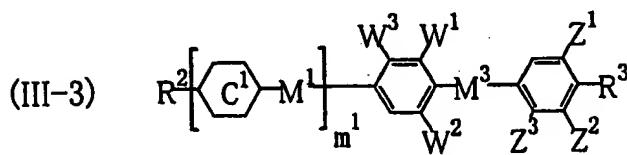
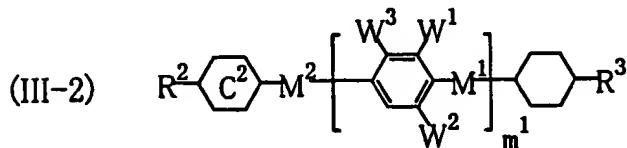
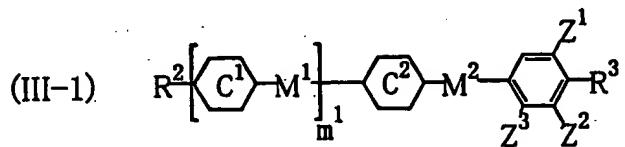
rings B<sup>1</sup> to B<sup>3</sup> each independently represents trans-1,4-cyclohexylene, trans-1,4-cyclohexenylene, trans-1,3-dioxane- 2,5-diyl, trans-1-sila-1,4-cyclohexylene, or trans-4-sila-1,4-cyclohexylene, and the ring B<sup>3</sup> may also be 1,4-phenylene, 2- or 3-fluoro-1,4-phenylene,[3,5-difluorol,4-phenylene] 3,5-difluoro-1,4-phenylene, 2- or 3-chloro-1,4-phenylene, 2, 3-dichloro-1,4-phenylene, or 3,5- dichloro-1,4-phenylene;

one, or two or more hydrogen atoms, which are present in a side chain group R<sup>1</sup>, a polar group Q<sup>1</sup>, linking groups P<sup>1</sup> to P<sup>3</sup> and rings B<sup>1</sup> to B<sup>3</sup>, may be substituted with a deuterium atom;

p<sup>1</sup> to p<sup>3</sup> each independently represents 0 or 1, and p<sup>2</sup> + p<sup>3</sup> is 0 or 1; and

atoms, which constitute the compounds of the general formulas (II-1) to (II-4), may be substituted with isotope atoms thereof) .

9. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 8] claim 1, wherein said liquid crystal component C contains compounds selected from the group of compounds represented by the general formulas (III-1) to (III-4) :



(wherein W<sup>1</sup> to W<sup>3</sup> each independently represents H, F, Cl, CF<sub>3</sub>, OCF<sub>3</sub>, or CN;

V represents CH or N;

R<sup>2</sup> and R<sup>3</sup> each independently represents an alkyl or alkoxy group having 1 to 10 carbon atoms or an alkenyl or alkenyloxy group having 2 to 10 carbon atoms, said alkyl, alkoxy, alkenyl or alkenyloxy group can have one, or two or more F, Cl, CN, CH<sub>3</sub> or CF<sub>3</sub> as a non-substituent or substituent group, and one, or two or more CH<sub>2</sub> group, which are present in said alkyl, alkoxy, alkenyl or alkenyloxy group, may be substituted with O, CO or COO, while O atoms do not bond with each other directly;

$Z^1$  to  $Z^3$  each independently represents H, F, Cl,  $CF_3$ ,  $OCF_3$ , or CN, and  $Z^3$  each independently represents  $-CH_3$ ;

$M^1$  to  $M^3$  each independently represents, a single bond,  $-COO-$ ,  $-OCO-$ ,  $-CH_2O-$ ,  $-OCH_2-$ ,  $-(CH_2)_2-$ ,  $-(CH_2)_4-$ ,  $-CH=CH-(CH_2)_2-$ ,  $-(CH_2)_2-CH=CH-$ ,  $-CH=N-$ ,  $=CH=N-N=CH-$ , or  $-N(O)=N-$ , and  $M^1$  and  $M^3$  each independently represents  $-CH=CH-$ ,  $-CF=CF-$ , or  $C\equiv C-$ ;

rings  $C^1$  to  $C^3$  each independently represents trans-1,4-cyclohexylene, trans-1,4-cyclohexenylene, trans-1,3-dioxane- 2,5-diyl, trans-1-sila-1,4-cyclohexylene, trans-4-sila-1,4-cyclohexylene, naphthalene-2,6-diyl, 1,2,3,4- tetrahydronaphthalene-2,6-diyl, or decahydronaphthalene-2,6-diyl, naphthalene-2,6-diyl and 1,2,3,4-tetrahydronaphthalene- 2,6-diyl can have one, or two or more F, Cl,  $CF_3$  or  $CH_3$  as a non-substituent or substituent group, and rings  $C^1$  and  $C^3$  may also be 1,4-phenylene, 2,3-difluoro-1,4-phenylene,[3-5-difluorol,4-phenylene]

3,5-difluoro-1,4-phenylene, 2- or

3-chloro-1,4-phenylene, 2,3- dichloro-1,4-phenylene, or 3,5-dichloro-1,4-phenylene;

one, or two or more hydrogen atoms, which are present in side chain groups  $R^2$  and  $R^3$ , linking groups  $M^1$  to  $M^3$  and rings  $C^1$  to  $C^3$ , may be substituted with a deuterium atom;

$m^1$  to  $m^3$  each independently represents 0 or 1, and  $m^2 + m^3$  is 0 or 1; and atoms, which constitute the compounds of the general formulas (III-1) to (III-4), may be substituted with isotope atoms thereof) .

13. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 12] claim 1, wherein said liquid crystal composition contains one, or two or more kinds of core-structure compounds which have four six-membered rings and a liquid crystal phase- isotropic liquid phase transition temperature of 100°C or higher.

14. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 13] claim 1, wherein said liquid crystal composition has a dielectric constant anisotropy within a range from 2 to 40, a birefringent index within a range from 0.02 to 0.40, a nematic phase-isotropic liquid phase transfer temperature within a range from 50 to 180°C or higher, and a crystal phase-, smectic phase- or glass phase-nematic phase transfer temperature within a range from -200 to 0°C.

15. (Amended) A nematic liquid crystal composition according to [any one of claims 1 to 14] claim 1, wherein said liquid crystal composition contains a compound having an optically active group capable of securing an induced helical pitch within a range from 0.5 to 1000 $\mu$ m.

16. (Amended) An active matrix, twisted nematic or super twisted nematic liquid display device using the nematic liquid crystal composition of [any one of claims 1 to 15] claim 1.

17. (Amended) A light scattering type liquid display device comprising a light modulation layer which contains the liquid crystal composition of [any one of claims 1 to 15] claim 1 and a transparent solid substance.